OBSERVATIONS OF A TORNADO NEAR FORT WORTH, TEX.

By D. S. LANDIS, Observer. Dated Fort Worth, Tex., June 3, 1908.

At 3:05 p. m. on May 29, 1908, a whitish, smoky-looking bank of clouds loomed up rapidly in the southwest, and within a few minutes similar banks of alto-cumulus clouds appeared in the west, then in the northwest. The fore front of each bank was flanked with whitish, curling, ragged-edged cloud substance, in appearance like billowy wood smoke from a distant forest fire. Within a period of five minutes cumulus clouds lying in the east and northeast began to move as tho sucked toward one common point on the Sansom ranch due north of the station, and about 4 miles distant. At this point a greenish-black cloud-core seemed to develop in the upper air, then bag downward, oscillate up and down in a careless rocking manner, drawing nearer and nearer to the earth, but failing to reach it by about 200 yards. This was the funnel of the tornado, the point of the funnel being ragged and misty looking, whirling and trailing inwardly upon itself. Presently the funnel bellied a little and at once became constricted to about half its original size immediately above the bellied portion. Next the whole cloud mass shot directly eastward for a distance of half a mile, stopt still, whirled rapidly for a few moments and then the funnel separated entirely at the stricture. The two portions of the funnel and the accompanying cloud mass now slowly backed, whirling gently, and again stopt, the tip now descending to the earth at the point where the funnel had formed. The upper portion then descended and the two parts of the funnel were reunited, the in-whirling motion becoming very energetic. Almost instantly after the union of the funnel portions the storm took on new electrical activity. Zigzag lightnings played in and out and about the funnel, which at times seemed like a great black transparent blood-vessel with the lightning a crimson fluid unleashed from the black walls to partially fall away, only to be grappled again by the darkness and hidden.

A thunderstorm prevailed during the passage of this peculiar cloud, and so continuous was the roar of thunder that one was at a loss to distinguish whether there were other sounds than its rolling.

At 3:08 p. m. the tornado center took on immense energy, and darted furiously toward the northeast, the funnel appearing very rigid and tapering down to a point within 200 yards of the earth. The funnel was ebony black, save when lit up by vivid sheet lightning on its east side. At one instant a spiral of lightning seemed to make two circuits of the funnel in its passage from the upper heights to the earth, the quiver of light leaping from the tip of the funnel to the earth. Within a space of two minutes more the dark funnel retired into the mother cloud overhead, and was lost from sight. Commotion in the clouds decreased rapidly, and they soon fell apart and so dissolved that only a few domes of cumulus clouds could be seen lying in the northeast, while the west and northwest sky was calm and cloudless. The whole affair seemed like a tornado on parade, sweeping the upper heights with threatening storm-tentacles of wind and mist and lightning, coming close down to earth as with death-dealing intent, only to repent and hide away from human eyes.

Among the weather features particularly noted were a very high relative humidity just before and after the storm, and a light wind from the south before the funnel formed. The wind direction changed very noticeably to various points as the storm past. At 3 p. m. the wind was prevailing from the south, and instantly it switched to the west, then to the northwest, north, and northeast in the course of the storm movement. The temperature during the whole storm period was 84°, but it fell quite decidedly for several hours after the passing of the clouds. Light rain prevailed at the station during the storm, also in the immediate vicinity of the tornado funnel, but no hail was reported. No marked wind movement was noted at the station with the passing of the storm, but those who were in the immediate vicinity of the funnel report a high wind from the east, with brisk wind movement from all points of the compass as the storm was passing. No damage to person or property was reported, the funnel coming to the earth for an instant only, and then in a wide pasture, treeless, fenceless, and houseless. The movement of the cloud for the few seconds that the funnel touched the earth was toward the northeast, herbage only showing the disturbance, grasses and weeds being inclined on the east quarter of the funnel as tho the wind were whirling from left to right. The herbage inclination on the north, northwest, and west showed the same right to left whirling motion of the wind. At the center of the path the grasses showed a pulled-together-at-the-top-influence, as tho suction had been inward and upward. The storm track visible on the ground was about 30 yards wide at the widest, and about 20 feet wide at the narrowest point. The earlier movement, directly eastward and then back to the starting point, was about half a mile each way, and the final northeastward movement of the cloud was about 4 miles to the point of dissolution. No glow was noted in the funnel or about it, nor any peculiar light, except the lightning, which varied from blood red to a blue flame like that of sulfur. No peculiar cloud form was noted, except that the clouds in the southwest and east elongated and dipt downward at the fore front, becoming torn and scud-like, whitish, and misty, seemingly rushing down an incline to a steep valley. With the union of all the clouds from the various points they changed color from the wood-smoke hue to a black cloud-core from which point the funnel lowered and the electrical display seemed to issue.

TORNADOES IN MINNESOTA ON MAY 24, 1908.

(Abstract from Climatological Report of the Minnesota Section.)

On the afternoon of May 24, 1908, two tornadoes visited southern Minnesota following on the warm, sultry weather of the preceding day. The first tornado appeared at 4:15 p. m., 3 miles southeast of Imogene, Martin County. It moved northwestward for about 2 miles along a path 40 rods in width, destroying $4,000 worth of property and injuring 4 persons.

The second storm formed at 4:30 p. m. in Blue Earth County, 25 miles northeast of Imogene, and traveled slightly east of north until it crost Lake Ballantyne when it disappeared about 4:50 p. m. The path of this tornado was 20 to 40 yards wide. One person was injured and property to the value of $5,000 destroyed. Detailed accounts of both tornadoes and a map showing the path of the second may be found on page 36 of the Climatological Report of the Minnesota Section for May, 1908, prepared by U. G. Purssell, Section Director.—EDITOR.

SEVERE LOCAL STORM IN FLORIDA.

Mr. C. L. Hobbs, cooperative observer of the Weather Bureau at Blountstown, Calhoun County, Fla., reports that a severe local storm occurred in the vicinity of his station about 1 o'clock in the afternoon of May 30, 1908. There was a well-defined pendant funnel-shaped cloud, with rotary winds of sufficient violence to uproot trees and prostrate buildings. The storm came from the northwest and moved toward the southeast.

Part of Mr. Hobbs's interesting description is given:

We had just finished dinner and heard a roaring noise and upon looking in a northwest direction we saw the tops of the trees swaying and bending in a terrible commotion. The greatest strength of the storm seemed to be some distance above the earth; however, the funnel dipt down right in the town, wrecked a new building 80 by 30 feet, then shot up to the tree tops and disappeared entirely. There were no trees prostrated in any general path; as before stated, the greatest violence

seemed to be up high, and its path thru the town was along a creek where there were generally no large trees. The damage to property amounted to about $1,700. No lives were lost and no one was injured.

Unsettled pressure conditions prevailed in the South on the morning of May 30, there being a storm of considerable energy off the Carolina coast and a shallow depression in Louisiana. Over western Florida the weather during the day was generally partly cloudy, with southwest to west winds. Practically no rain fell in that section, and the observer at Blountstown reported only a light sprinkle. Rain set in over the western counties during the night of the 30th, and the amounts measured on the following day in several instances exceeded an inch.—*T. F. D.*

A HURRICANE IN THE WEST INDIES IN MARCH, 1908.

By JOHN T. QUIN. Dated St. Croix, Danish West Indies, May 20, 1908.

In the first week of March, 1908, we of the islands in and around the northeastern corner of the Caribbean Sea were surprised to experience weather of so boisterous a character that it reminded us of what sometimes takes place in the regular hurricane season, weather whose behavior suggested the passage of a cyclone, but a cyclone following a quite unusual track.

Here, in St. Croix, there was a marked change in conditions on the 4th of the month, when the wind, as shown in Table 1, leaving the east-southeast direction, in which it had been blowing, went round to southwest. During the night it went thru west to west-northwest, from which point it was blowing hard early in the morning of the 5th. Later in the day it shifted to northwest, and during the following two days it blew a half-gale from north or thereabouts. On the afternoon of the 7th it was shifting toward northeast, to which point it had gone round before dawn on the 8th, during which day it shifted still farther till it arrived at east-southeast again. Hence it had gone thru all the points of the compass during the five days. This remarkable journey, along with the rather low barometer from the 3d of the month, appeared to show that a cyclone center was passing north of these islands from about west-northwest to east-southeast. But this seemed so unlikely that it was easier at first to suppose that there must have been some other cause for these changes. It was only on the night of the 7th, when the barometer began to fall and the wind continued to shift more to the east, and on the morning of the 8th, when the barometer fell still lower and the wind went still further round, that it began to appear certain that a cyclone had at all events been now developed and that it was entering the Caribbean Sea.

At St. Thomas the same wind changes were observed as at St. Croix, and the barometer at its lowest, which was at 3 a. m. on the 8th, stood nearly at the same height, namely, 29.80.

As information from the other neighboring islands began to come in after the storm had past, its character and movements became more and more clear, till it seemed plain that a cyclone of considerable force, originating to the northward, had moved first toward east-southeast and then southeast, then had curved to the southwest and entered the Caribbean Sea. By and by it became possible to say just where the cyclone center had past thru the Caribbean chain of islands, namely, between St. Christopher on the southeast and St. Eustatius on the northwest. This is manifest from the fact that at St. Christopher and at Nevis all the small craft lying, as is the case nearly everywhere in the Caribbean chain, on the westward or lee side of the islands were driven ashore, while at St. Eustatius the vessels (also on the lee side) were driven out to sea. A schooner navigated by the mate and a couple of hands arrived at St. Thomas and reported having been driven off from St. Eustatius by the storm, the captain and the rest of the crew having been left ashore, as there was no possibility of communicating. On the 23d of March a telegram was received here in St. Croix from Porto Rico announcing that "a Curaçao sloop named the *Sea Hawk* was picked up off Arroyo on Friday (the 20th), abandoned and stripped of mast and sails." Subsequently it turned out that the sloop had broken away from her anchorage at St. Eustatius during the storm, all hands being on shore at the time. On the other hand, the St. Christopher Advertiser of the 10th contained a list of about twenty-four sloops and boats that had been driven ashore in the early morning of the 8th and been either entirely destroyed or badly damaged. The storm was at its height there at 2 a. m., when the barometer at Basseterre, St. Kitts, stood at 29.28. At Antigua, farther away from the center to the eastward, it stood at 29.62 at the same hour. Here in St. Croix, as noted above, the lowest barometer was at 4 a. m., when it stood at 29.83 and at St. Thomas an hour earlier at 29.80. No particulars in this regard have reached us from the other islands.

TABLE 1.—*Weather notes, February 29 to March 11, 1908, at Christiansted, St. Croix, W. I.*

Date.	Barometer, reduced.*	Wind and weather.	Rainfall.	Sea.
1908.	*Inches.*		*Inches.*	
Feb. 29	30.05	Fine, with light showers; high clouds in early morning from W. by S.	0.33	
Mar. 1	30.00	Moderate breeze from ESE.; low clouds from ESE.; high clouds very abundant from W. by S.; fast.	.05	
2	29.96	Cloudy; low clouds from ESE.....	.00	
3	29.94	Cloudy most of day; lightning in evening; low clouds from SE.	.00	
4	29.93	Fine; heavy shower between 1 and 2 in the morning; light breeze SW.	.12	Moderate swell on reef.†
5	29.95	6:30 a. m., cloudy; clear by 8 a. m.; strong wind from WNW.; later from NW.	.14	Sea rather heavy.
6	29.99	Strong N. wind all day; low clouds in blue sky.	.00	Rough sea.
7	29.94	Squally, with light showers; wind strong from N., increasing and shifting toward NE.	.12	Sea increasing; magnificent breakers on reef in afternoon.
8	‡29.83	Heavy weather all night, wind shifting thru NE. to ENE. by 8 a. m., to E. by 11 a. m., to SE. by E. by 4 p. m., still gusty, but greatly abated.	.19	Grand sea on reef in forenoon; greatly abated by 4 p. m.
8	30.04			
9	30.09	Cloudy in early morning, cleared by 8 a. m.; fine day; light breeze from E.	.27	Sea subsided.
10	30.10	Fine; moderate breeze from ENE.; light showers occasionally.	.12	Sea subsided.
11	30.11	Fine; fresh breeze from E. or E. by N.; occasional squalls, with light showers.	.12	Moderate swell on reef.

* At 10 p. m., except where otherwise stated.
† The reef referred to is the "Long Reef," at Christiansted. It faces northeast.
‡ At 4 a.m.

In regard to the rainfall from this disturbance, we learn from the reports of Mr. Shepherd, Agricultural Superintendent at St. Kitts, to the Imperial Department of Agriculture, Barbados, that in the north of St. Kitts the fall was 8 inches, at Basseterre, in the southeast of St. Kitts, it was 4 inches, and in Nevis, still farther to the southeast, it was 3 inches. This gradation is interesting as confirming the view that the cyclone center past thru the channel between St. Kitts and St. Eustatius. Here in St. Croix, at a distance of about 120 English miles from the center, the rainfall did not amount to 1 inch.

Before reaching the above-named channel the center had past near to St. Bartholomew, where some damage was done to buildings, among others to the Anglican Church. In St. Martins, lying northwest of St. Bartholomew, considerable damage was done to the tents of the peasants and to the cotton crop. The news from that island is also interesting as containing the information that the wind went round thru east, as in the Danish Islands, showing that St. Martins was on the same side (the northwest side) of the storm.

Of the cyclonic nature of the storm there can be no doubt; but whether it had the usual calm center or not there is no evidence to show.

In regard to the track of the storm center shortly before it came among the West Indian Islands we have two clues. The